

REMARKS

This response addresses the issues raised by the Examiner in the Office Action mailed March 2, 2004. Initially, Applicants would like to thank the Examiner for the careful consideration given in this case. The Claims were 1-34. Claims 1 and 7 have been currently amended and Claims 2 and 8 have been canceled. Thus, Claims 1, 3-7, and 9-32 are pending in this case all to more clearly and distinctly claim Applicants' invention. In view of the above amendments and the following remarks, Applicants submit that the presently pending claims are in condition for allowance and notification of such is respectfully requested.

Rejection Based On Yoshimitsu Under 35 U.S.C. § 102 (b)

The Examiner rejects Claims 1, 3, 7, 10 and 12 under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent 4,888,255 to Yoshimitsu et al. as applied to currently amended independent Claims 1 and 7. Applicants respectfully traverse this rejection.

The Examiner argues that Yoshimitsu teaches a non-aqueous electrochemical cell which contains an anode, a cathode an electrolyte and a separator. The Examiner also argues that charging and discharging of the battery is mentioned in Yoshimitsu. Further, the Examiner asserts that Yoshimitsu teaches adding an aromatic compound to the electrolyte solution that may be diphenyl disulfide and derivatives including halogens where the amount of aromatic compound added is 0.01 mol/L. The Examiner also asserts that the solvent systems include propylene carbonate. Thus, the Examiner concludes that Yoshimitsu anticipated the present invention.

To establish obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. MPEP § 2143.03. As stated above, independent Claims 1 and 7 have been currently amended. Claim 1 has been amended to include that the non-aqueous secondary battery which comprises a positive electrode, a negative electrode, a separator, and an electrolytic solution which contains a substituted diphenyldisulfide derivative where each R¹ and R² in the diphenyldisulfide derivative formula is an alkoxy

group having 1-6 carbon atoms. Claim 7 has been currently amended to include a non-aqueous electrolytic solution containing a substituted diphenyldisulfide derivative where each R^1 and R^2 in the diphenyldisulfide derivative formula is an alkoxy group having 1 to 6 carbon atoms.

Yoshimitsu teaches a non-aqueous electrochemical cell comprising an anode, a cathode, electrolyte solution and a collector. See Abstract. Yoshimitsu also, teaches adding an aromatic compound to either the electrolyte and or the collector. See Col. 3, lines 61-64. However, Yoshimitsu does not teach adding a diphenyldisulfide derivative to an electrolytic solution where each R^1 and R^2 in the diphenyldisulfide derivative formula is an alkoxy group having 1-6 carbon atoms. Since Yoshimitsu does not disclose this feature of the present invention, Yoshimitsu does not disclose each and every claim element of the claimed invention. Accordingly, Applicants respectfully request that the rejection under 35 U.S.C. § 102 (b) be reconsidered and withdrawn.

Rejection Based On Takami In View Of Yoshimitsu Under 35 U.S.C. § 103 (a)

The Examiner rejects Claims 4, 5, 6 and 11 under 35 U.S.C. § 103 (a) as being unpatentable over U.S. Patent No. 5,340,670 to Takami et al. in view of U.S. Patent No. 4,888,255 to Yoshimitsu. Applicants respectfully traverse this rejection.

The Examiner concedes that Takami does not disclose an additive to the electrolyte comprising a substituted diphenyl sulfide derivative. The Examiner then refers to Yoshimitsu for teaching a non aqueous electrochemical cell containing lithium anode, a cathode , an electrolyte and a separator. The Examiner argues that Yoshimitsu teaches adding an aromatic compound to the electrolyte solution that may be diphenyl disulfide and derivatives including halogens where the amount of aromatic compound added is 0.01 mol/L. Thus, the Examiner concludes that it would be obvious to one of ordinary skill in the art at the time the invention was made to incorporate the additive into the cell of Takami in the cell of Yoshimitsu as it would react with the surface of the electrode at the interface of the electrolyte and allow for

the uniform release of lithium ions into solution upon discharge to prevent a voltage drop at the initial stage of discharge of the cell as shown in Takami. Applicants respectfully disagree.

To establish obviousness of a claimed invention, all claim elements must be disclosed, taught or suggested by the prior art. Since Examiner rejects Claims 4, 5, 6 and 11 which are dependent on Claims 1 and 7, Applicants will discuss this rejection as applied to independent Claims 1 and 7. As stated above, independent Claims 1 and 7 have been currently amended. Claims 1 and 7 have been currently amended to include that the non-aqueous secondary battery which comprises a positive electrode, a negative electrode, a separator, and an electrolytic solution which contains a substituted diphenyldisulfide derivative where each R^1 and R^2 in the diphenyldisulfide derivative formula is an alkoxy group having 1-6 carbon atoms.

Takami teaches a lithium secondary battery comprising a positive electrode, a negative electrode a separator and a non-aqueous electrolyte. See claim 10. However, Applicants agree with the Examiner that Takami does not teach an additive to the electrolyte comprising a substituted diphenyl sulfide derivative.

Yoshimitsu teaches a non-aqueous electrochemical cell comprising an anode, a cathode, electrolyte solution and a collector. See Abstract. In addition, Yoshimitsu teaches adding an aromatic compound to either the electrolyte and or the collector. See Col. 3, lines 61-64. However, Yoshimitsu does not teach adding a diphenyldisulfide derivative to an electrolytic solution where each R^1 and R^2 in the diphenyldisulfide derivative formula is an alkoxy group having 1-6 carbon atoms.

Accordingly, Takami does not teach adding an additive to the electrolyte comprising a substituted diphenyl sulfide derivative. Also, Yoshimitsu does not teach adding a diphenyldisulfide derivative to an electrolytic solution where each R^1 and R^2 in the diphenyldisulfide derivative formula is an alkoxy group having 1-6 carbon atoms. Thus, the

Applicants believe that the present invention is not obvious over the teaching of Takami in view of Yoshimitsu since Takami and/or Yoshimitsu does not teach, disclose or suggest the present claims. Moreover, one skilled in the art would find nothing in Takami or Yoshimitsu alone or in combination that would disclose, teach or suggest the claimed invention or any reason for making it. Further, there is no motivation to combine the references in such a way to get the claimed invention. Therefore, an obvious rejection under 35 U.S.C. §103 (a) is improper.

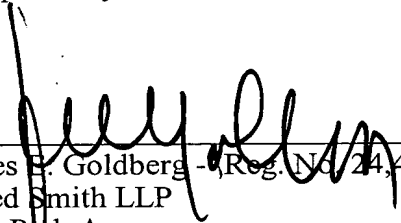
Allowable Subject Matter

Applicants thank the Examiner for indicating that Claims 13 -34 are allowed. In addition, Applicants thank the Examiner for indicating that Claims 2, 8 and 9 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. Applicants have currently amended independent claim 1 and independent claim 7 to include adding a diphenyldisulfide derivative to an electrolytic solution where each R¹ and R² in the diphenyldisulfide derivative formula is an alkoxy group having 1-6 carbon atoms. The Examiner acknowledges that the prior art references alone or in combination fail to teach the include adding a diphenyldisulfide derivative to an electrolytic solution where each R¹ and R² in the diphenyldisulfide derivative is an alkoxy group having 1-6 carbon atoms. Accordingly, pending claims 1, 3-7, and 9-32 now stand in condition for allowance.

In view of the remarks presented herein, it is respectfully submitted that the present application is in condition for final allowance and notice to such effect is requested. If the Examiner believes that additional issues need to be resolved before this application can be passed to issue, the undersigned invites the Examiner to contact him at the telephone number provided below.

Respectfully submitted,

September 2, 2004



Jules B. Goldberg - Reg. No. 24,408
Reed Smith LLP
375 Park Avenue
New York, NY 10152
Tel. No. (212) 521-5403